

### **REMARKS**

Reconsideration of the application in view of the following remarks is respectfully requested.

#### **Status of the Application**

Claims 1-4 and 6-13 were previously pending, and every claim was rejected.

Claims 1, 3-4 and 6-13 are amended. No new matter has been added.

Claim 2 is canceled without disclaimer of the subject matter contained therein.

Claims 1, 3-4 and 6-13 are pending for examination.

#### **Rejections under 35 U.S.C. § 103**

Claims 1, 3-4, 6-10 and 12-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent Application Publication No. 2003-209286 to Kitano (hereinafter "Kitano") in view of Silicon Processing for VLSI Era Volume 1 by Wolf et al. (hereinafter "Wolf") and further in view of U.S. Patent No. 6,689,498 to Shinosawa et al. (hereinafter "Shinosawa").

The amendments to Claim 1 are supported by disclosures in the application-as-filed including, but not limited to, the discussion of the adhesion and barrier layers located at Paragraphs 81-82 of the Specification. As amended, Claim 1 teaches, *inter alia*, forming an adhesion layer and a barrier layer on a substrate, wherein the adhesion layer is formed directly on the substrate, the barrier layer is formed directly on the adhesion layer, and a metal film is formed directly on the barrier layer. Amended Claim 1 further teaches that the thickness of the adhesion layer is between .01-1.00  $\mu\text{m}$  and that the thickness of the barrier layer is between .01-1.50  $\mu\text{m}$ .

The Examiner contends that Figure 3 and related text of Kitano discloses the adhesion and barrier layers taught by amended Claim 1. In particular, the Examiner contends that the Cu layer 110 of Kitano discloses the adhesion layer of amended Claim 1 and that the Ni layer 109 of Kitano discloses the barrier layer of amended Claim 1.

Contrary to the Examiner's contentions, Kitano does not disclose, teach or suggest the adhesion and barrier layers taught by amended Claim 1. Kitano discloses a Cu layer **110** that "forms the external electrode in the luminescence equipment" of Kitano (see Kitano, ¶ 30). Kitano discloses that Cu is an advantageous material to use in the layer that is formed directly on the glass epoxy resin **111** because its "thermal conductivity is good as compared with other metals" and because it is possible to "form [a] Cu layer more thickly than other external electrodes."

By contrast, the purpose of the adhesion layer of amended Claim 1 is to provide a layer of material with "superior adhesion with the substrate" so that the metal films can be formed on top of the adhesion layer (see Specification, ¶ 81). The adhesion layer of amended Claim 1 is structured and composed in such a way as to improve adhesion to the substrate, not to form an external electrode or to improve thermal conductivity. Therefore, the Cu layer **110** of Kitano does not disclose the adhesion layer of amended Claim 1.

Furthermore, even assuming *arguendo* that the Cu layer **110** of Kitano serves an adhesion-improving function (which Applicants dispute), Kitano does not disclose the adhesion layer of amended Claim 1 because Kitano expressly teaches away from using a layer with the thickness limitations included in amended Claim 1. Amended Claim 1 teaches that the thickness of the adhesion layer is in the range of .01-1.00  $\mu\text{m}$ . By contrast, Kitano discloses that the thickness of the Cu layer **110** should be in the range of 18-70  $\mu\text{m}$  (see Kitano, ¶ 40). Therefore, Kitano does not disclose, and actually teaches away from, the adhesion layer with the particular thickness characteristics taught by amended Claim 1.

Similarly, the Ni layer **109** of Kitano does not disclose the barrier layer taught by amended Claim 1. The Ni layer **109** of Kitano is structured and composed in such a way as to increase the "heat dissipation nature of luminescence equipment," i.e. to increase the heat dissipation of the light emitter. By contrast, the barrier layer taught by amended Claim 1 is structured and composed in such a way as to "prevent[s] the diffusion of Ag, Al or the like to the adhesion layer." Therefore, the Ni layer **109** of Kitano does not disclose the barrier layer taught by amended Claim 1.

Furthermore, even assuming *arguendo* that the Ni layer 109 of Kitano could perform some of the diffusion-preventing functions of the barrier layer taught by amended Claim 1 (which Applicants dispute), Kitano expressly teaches away from using a layer with the thickness limitations included in amended Claim 1. Amended Claim 1 teaches that the thickness of the barrier layer is in the range of .01-1.50  $\mu\text{m}$ . By contrast, Kitano discloses that the thickness of the Ni layer 109 should be 4  $\mu\text{m}$  (see Kitano, ¶ 40). Therefore, Kitano does not disclose, and actually teaches away from, the barrier layer with the particular thickness characteristics taught by amended Claim 1.

Kitano does not disclose, teach or suggest, and in fact teaches away from, the adhesion and barrier layers taught by amended Claim 1. Furthermore, nothing in Wolf or Shinosawa teaches, suggests or discloses these features of amended Claim 1, and the inclusion of these features would not have been obvious to one of ordinary skill in the art at the time of invention. Therefore, for at least the foregoing reasons, amended Claim 1 is neither anticipated by nor obvious over the cited combination of references, and this claim is in condition for allowance. Withdrawal of the rejection of this claim is respectfully requested.

Dependent Claims 3-4, 6-10 and 12-13 all depend from independent base Claim 1. Therefore, all of these claims are in condition for allowance at least due to their dependence on an allowable independent base claim. Withdrawal of the rejections of these claims is respectfully requested.

Claims 1, 3-4, 6-10 and 12-13 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over a reordering of the foregoing references: Wolf in view of Kitano and further in view of Shinosawa (see Office Action, p. 7). Because the ordering of the references does not impact the validity of the foregoing arguments with respect to the patentability of these claims, these claims are allowable over the cited reordering of references for at least the foregoing reasons. Withdrawal of the rejections of these claims is respectfully requested.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano, Wolf and Shinosawa, and further in view of U.S. Patent Application No. 2004/0004435 to Hsu (hereinafter "Hsu"). Because Claim 11 depends from independent base Claim 1, the foregoing arguments with respect to the allowability of Claim 1 over the combination of Kitano, Wolf and Shinosawa apply to Claim 11 as well. Furthermore, nothing in Hsu teaches, discloses or suggests the adhesion and barrier layers taught by amended Claim 11, and the inclusion of these features would not have been obvious to one of ordinary skill in the art at the time of invention. Therefore, for at least the foregoing reasons, Claim 11 is neither anticipated by nor obvious over the cited combination of references, and this claim is in condition for allowance. Withdrawal of the rejection of this claim is respectfully requested.

Claim 11 is also rejected under 35 U.S.C. § 103(a) as being unpatentable over a re-ordering of the foregoing references: Wolf in view of Kitano and Shinosawa and further in view of Hsu (see Office Action, p. 11). Because the ordering of the references does not impact the validity of the foregoing arguments with respect to the patentability of this claim, this claim is allowable over the cited reordering of references for at least the foregoing reasons. Withdrawal of the rejection of this claim is respectfully requested.

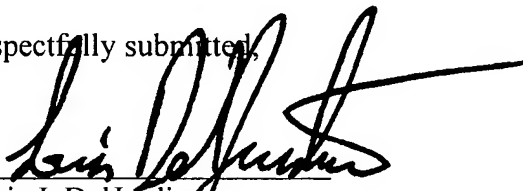
**CONCLUSION**

Each and every point raised in the Office Action dated December 31, 2008 has been addressed on the basis of the above remarks. In view of the foregoing it is believed that claims 1, 3-4 and 6-13 are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

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Respectfully submitted,

By 

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